

RESEARCH ARTICLE

Food and Feeding habit of *Mystus seenghala* (sykas) the common catfish of Mithbav estuary of South Konkan, Sindhudurg District, Maharashtra, India.

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ABSTRACT

Gut content analysis in euryhaline estuarine catfish *Mystus seenghala* indicates that the gut content consists of about 25-30% plant food matter, 50-60% of animal matter and rest was detritus. The percentage of animal matter in the diet increased by 5-10% with increase in body length from smaller juvenile 5-10 cm. to adult 25-35 cm. The quality and quantity of food diets varies according to habitat. In monsoon season, they spend more time in paddy field, showed more vegetation than animal matter while in extremely low salinity areas high percentage of detritus than others. In estuarine habitat, the gut contents showed more planktonic matter. It is clearly understood that their food and feeding habit totally co-related to the surrounding environmental condition only. It is really a good habit in relation to aquacultural practices. It is nutritious, and tasty fish consumed on large scale in south konkon.

Key Words- Catfish, Food, Mithbav, Sindhudurg, India.

INTRODUCTION

Mystus, seenghala is commonly known as 'Shengati'. It is a euryhaline estuarine catfish, Inhabiting both flowing and standing waters. This species has high rate of tolerance hence easy for cultured in the lagoons and reservoirs. It's growth is faster than other commercially important fish. It attends the maturity at the age any 4-5 months. If attends maximum growth of 30-40 cm. within two year of duration. It is devoid of scales, with greenish colour skin on dorsal side and ventrally whitish yellow-.The skin is shining and slimy to touch indicating freshwater habitat. In monsoon, they move downward in the estuary for spawning. They always move in school of 10-20 individuals of both the sexes. The males followed the females for breeding purposes. The schools directly entered in paddy field, lagoons, rosewoods for laying the spawn of eggs. As soon as the eggs are laid down, the male spray the semen over the bunch of eggs for quick fertilization. The rate of fertility as well as natality is observed always high compare to other fish. As soon as they grow to fingerling, they again move toward the low salinity habitat for further growth. It is also observed that maximum growth occurred in low salinity regions. This species is preferred as food fish in coastal areas of south Konkon, due to its high nutritious taste. Now a day, it has also got its importance as ornamental fish too. Very little work has been carried out on its biology.

The juveniles feed on algae cyanobacteria, Rotifers, cyclops, insects etc. In monsoon, for the period of three month, their length reached to 4-5 cm. while in pre-monsoon 15-20 cm. for one year period. The tail fin is forked, while dorsal and pectoral having one-one poisonous sting. The mouth is wide and serves as voracious and bottom feeder. The mouth has two pair of barbs. in which upper jaw's barbs are thick and more sensitive in nature. The barbs are tactile in nature, hence like snake, they creep on soil surface in zig-zag manner in search of food. In starvation period, they prefer more detritus as food. This species along with others regularly occur in the catch composition from this region. It is the topmost tropic level in freshwater fish food chain. The detail of biology including gut content analysis was studied by various researchers (Pandia, 1966) but no one in South Konkan. It is an important fish food of coastal native during monsoon period. The long-line as well as hand line, cast nets, gill-nets used for juvenile and adult fishing. The zooplanktons are the main food in adult condition. The juveniles voraciously feed on detritus as well as plant material available in paddy field. Due to pollution, the planktonic biomass is drastically affecting, which alter the food habitat of this species in Mithbav estuary. It is an important aquacultural fish managed in fish farms easily. It is but natural, to investigate their food composition in the gut of this predatory fish species. Gut content analysis gives an overall reflection about the types of food material available to the animals in food chain and ultimately it is representation of food in the ecosystem. Gut content study of predatory fish is an significant aspect in the determination of dependence of this top omnivorous to maintain the balance in ecosystem.

MATERIALS AND METHODS

Monthly Samples of *Mystus seenghala* (sykas, 1839) have been collected from June 2011 to may 2012 from an undisturbed wetland of Mithbav (L.16° 20' N.L. 17° 25' E) estuary of south Konkan. The fish were collected and the investigation carried out for all the seasons. The percentage composition of gut content was

determined by point method. The content in the stomach and intestine in partially digested status were removed by using soft brush and collected in petri-dishes. The contents were fixed in 4% formalin. The large sized food material collected from stomach was counted numerically. The smaller sized and rest of the materials was collected in 50-100ml vials containing 4% formaline. Numerical and volumetric methods of gut content analysis were carried out by haemocytometric method.

RESULTS AND DISCUSSIONS

The gut of *Mystus seenghala* is formed of distinguishable elongated sac like stomach with blind stomach portion and a narrow short intestine. In the present investigation, It is observed that the amount of plant and animal matter in the diet did not change significantly with their body size much but could change seasonwise and habitat use only. The surrounding environmental condition is directly or indirectly affecting the food and feeding habitat. Table.1 showed the seasonal variation of gut content. It is clearly understood that in monsoon the percentage composition of animal matter was 30% against 60% of the plant matter. In monsoon the matured fish entered in paddy field and feed voraciously on small seedling as well as spirogyra. Table 2 showed qualitative analysis of food items. In monsoon usually spirogyra, *Spirulina*, *Nostoc*, *Anabaena*, *Euglena*, *Navicula*, Diatoms were dominant in gut content than animal matter. In post monsoon the fish leave the field and enter in main stream of estuary hence the percentage of animal matter was highest about 65% compare to 20% of plant and 15% detritus. In pre-monsoon season the percentage of animal matter decline but detritus increased to 35%. In pre-monsoon they spent more time in riverine environment. It is clearly seen that this commercially important species could change the food diet as per the habitat only (Babre, 2013). It was noticed that the relationship between change in morphometric and diet shifts in different size classes of the *Mystus* sp.

Table 1: Seasonal variations of gut content

Season	% of Animal matter	% of plant matter	% Detritus & Unidentified %
Monsoon	30	60	10
Post monsoon	65	20	15
Pre-monsoon	50	15	35

Table 2: Qualitative analysis of food items.

Sr.No	Animal material	Plants material
1.	Cycloid and ctenoid scales.	Spirogyra
2.	Crustacean shells	Spirulina
3.	<i>Penaeus indicus</i>	Nostoc
4.	Fish larva	Closterium
5.	Megalopa	Anabaena
6.	zoea larva	Nitzschia
7.	<i>Pheretima spp.</i>	Oscillaria
8.	Insects legs	Bascillaria
9.	Cypris (Ostracod)	Navicula
10.	Rotifers	Coscinodiscus
11.	Amphipod	Euglena
12.	Bipinnaria larva	Diatoms
13.	Cladocera	Seedling of rice
14.	Copepoda	Grass fragments
15.	Herpactoid, Calanoid, Cycloid copepod	
16.	Gamarus	
17.	Mysis	

The present analysis in monsoon showed that the fish has the ability to feed upon wide range of food items including plants and animals but the percentage fullness of stomach and number of food items consume was high during monsoon as compare to low in pre-monsoon. It feeds up on nearly 14 plant species including colonial, unicellular and filamentous algae and detritus. The animal species in the diet comprises 21 in number. It indicates that the species under study have broad tropic spectrum with 35 dietaries in total. There are various methods of stomach content analysis like occurrence, numerical volumetric, Gravimetric, Subjective Stomach content, flushing gut content analyses would not be correct term because it difficult to collect and identify the food (Pandia, 1966). The planktonic food items accelerate the growth faster in all the season. The maximum growth was observed in low salinity condition. The zooplankton were the main food observed in adult stages. The juveniles voraciously feed on detritus as well as plant material available in paddy field and in of reservoirs. Rotifers were also found regularly as food items in juvenile condition. Young onces are insectivorous while adults are strongly carnivorous and feed on fish, Shrimp and mollusks. It is voraciously feeds on dead fish, or other animals present in the surmounting environment.

CONCLUSION

Mystus seenghala is common omnivorous catfish available in Mithbav estuary throughout the season. It has high rate of thermal as well as salinity tolerance, therefore could be used as model specimen for the aqua-cultural practices. The growth of this species is

fully completed within two years period. The natality rate is always high and also survive in adverse condition. In monsoon season, they move to the saline habitat for spawning purposes. The development is completed in monsoon time in the lagoon, reservioer and in crop field. They return back to fresh habitat after attending 4-5 cm. body length. They attend sexual maturity within 5-6 months duration. The fecundity is compare to others is also high. The food and feeding is strictly correlated with their environmental condition (Pandia, 1966) This species has high nutritional taste, hence now-a-days the demand in local as well as in foreign market is maximum. It has also got its importance as ornamental fish too. It is advisable to coastal people to exploit this specimen on large scale. to get more foreign exchange.

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